

Detailed Action

This action is responsive to the amendments filed on 10/06/2009.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

(1) In claim 1, lines 1-2 change the following wording:

“a digital I/Q signal” to

---a digital in-phase/quadrature (I/Q) signal---

(2) In claim 1, line 8 change the following wording:

“a GMSK modulator” to

---a Gaussian Minimum Shift Keying (GMSK) modulator---

(3) In claim 6, line 2 change the following wording:

“an 8PSK modulator” to

---an 8 Phase Shift Keying (8PSK) modulator---

(4) In claim 7, lines 1-2 change the following wording:

“a digital I/Q signal” to

---a digital in-phase/quadrature (I/Q) signal---

(5) In claim 7, line 10 change the following wording:

“a GMSK modulator” to

---a Gaussian Minimum Shift Keying (GMSK) modulator---

- (6) In claim 17, lines 3-5 change the following wording:

“generating a digital I/Q signal having a plurality of time-slots by selectively using a GMSK modulation scheme when operating in a GMSK mode of operation and an 8PSK modulation scheme when operating in an 8PSK mode of operation” to

---generating a digital in-phase/quadrature (I/Q) signal having a plurality of time-slots by selectively using a Gaussian Minimum Shift Keying (GMSK) modulation scheme when operating in a GMSK mode of operation and an 8 Phase Shift Keying (8PSK) modulation scheme when operating in an 8PSK mode of operation---

- (7) In claim 19, line 2 change the following wording:

“a digital I/Q signal” to

---a digital in-phase/quadrature (I/Q) signal---

- (8) In claim 19, line 9 change the following wording:

“a GMSK modulator” to

---a Gaussian Minimum Shift Keying (GMSK) modulator---

- (9) In claim 22, line 2 change the following wording:

“an 8PSK modulator” to

---an 8 Phase Shift Keying (8PSK) modulator---

Allowable Subject Matter

2. Claims 1, 6-7, and 12-24 are allowed.
3. The following is an examiner’s statement of reasons for allowance:

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4. With respect to independent claims 1, 7, and 19, the present invention comprises a digital in-phase/quadrature (I/Q) modulation apparatus and method which comprising a first order linear branch with a first pulse shaping filter and a second higher order linear branch with a second pulse shaping filter, which when combined (added together) approximates a GMSK modulated signal and generates a dip in the envelope of the digital I/Q signal in the guard interval between adjacent time-slots by filling in digital zeros into the first the first and/or second pulse shaping filters. The closest prior art Sander (United States Pre-Grant Publication 2004/0208157) shows a similar apparatus and method which also generates a digital I/Q signal have a plurality of time slots which introduces a dip in an envelope of the digital I/Q signal in a guard interval between adjacent slots for GMSK modulation. However, Sander fails to disclose the first branch and second branch with respective pulse shaping filters which approximate a GMSK modulator as claimed, and the dip in the envelope being generated by filling digital zeros into the first and/or second pulse shaping filters as claimed. The distinct features have been added to independent claims 1, 7, and 19, therefore rendering claims 1, 6-7, 12-16, and 19-24 allowable.

5. With respect to independent claim 17, the present invention comprises a digital in-phase/quadrature (I/Q) modulation apparatus and method including the selective utilization of a GMSK modulation scheme and an 8PSK modulation scheme, where the GMSK modulation scheme uses a first order linear branch with a first pulse shaping filter and a second higher order linear branch with a second pulse shaping filter, which when combined (added together) approximates a GMSK modulated signal, the 8PSK modulation scheme uses the first pulse shaping filter, and the generation of a dip in the envelope of the digital I/Q signal in the guard interval between adjacent time-slots by filling in digital zeros into the first the first and/or second

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pulse shaping filters. The closest prior art Sander (United States Pre-Grant Publication 2004/0208157) shows a similar apparatus and method which also generates a digital I/Q signal have a plurality of time slots which introduces a dip in an envelope of the digital I/Q signal in a guard interval between adjacent slots for GMSK modulation. However, Sander fails to disclose selective utilization of the GMSK modulation scheme and 8PSK modulation scheme as claimed, the first branch and second branch with respective pulse shaping filters which approximate a GMSK modulator as claimed, and the dip in the envelope being generated by filling digital zeros into the first and/or second pulse shaping filters as claimed. The distinct features have been added to independent claim 17, therefore rendering claims 17 and 18 allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES M. PEREZ whose telephone number is (571)270-3231. The examiner can normally be reached on Monday through Friday: 9am to 5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James M Perez/

Examiner, Art Unit 2611

10/20/2009

/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611